

and locks with a relative rotation of the connectors. In contrast to conventional dry-break connectors that include an integrated locking mechanism via integrated locking features provided at the housings of the connectors, according to examples of the present disclosure, the first and second fluid connectors **124** and **126** can each be provided by a pair of flat-face, dry-break connectors without a locking mechanism at the first and second connectors, i.e., without locking features on the respective connector housings, such as illustrated in FIG. 2. In this regard, a connector **150** as shown in FIG. 2 may serve as inlet port **124a**, and another such connector **150** may serve as inlet port **126a**. Likewise, a connector **160** may serve as outlet port **124b**, and another such connector **160** may serve as outlet port **126b**.

[0025] Exemplary connector **150** includes a metal housing **152**, a spring loaded retractable metal sleeve **154**, and a metal center rod **156**. Exemplary connector **160** includes a metal housing **162**, a metal sleeve, and a retractable metal piston **166**. Connector **150** can be connected to connector **160** by bringing their respective faces into contact and forcing them together, whereby sleeve **154** pushes retractable sleeve **154** inward, and center rod **156** pushes piston **166** inward, such that a fluid pathway is opened between connectors **150** and **160**, with a fluid-tight connection being made by internal seals. The internal seals and internal mechanisms of the connectors **150** and **160** are of a typical nature for conventional flat-face connectors known in the art. Aside from the lack of integrated locking features at the housings of connectors **150** and **160**, the connectors **150** and **160** can be otherwise configured to satisfy desired performance specifications, such as, e.g., military specifications MIL-C-7413B or MIL-C-25427A. Integrated locking features need not be provided at connectors **150** and **160**, e.g., at the housings **152** and **162** thereof, because the auxiliary battery module **102** is structurally secured to the electric vehicle **100** with structural fasteners or other latching mechanisms as previously described herein, thereby securing and maintaining the first and second electrical connectors **120**, **122** and first and second fluid connectors **124**, **126** fixed in place relative to their respective counterpart (complementary) connectors.

[0026] To facilitate proper positioning of the auxiliary battery module **102** relative to the electric vehicle **100** to thereby provide proper alignment of the first and second electrical connectors **120**, **122** and the first and second fluid connectors **124**, **126** during attachment (mounting), removal, and reattachment of the auxiliary battery module **102** in relation to the electric vehicle **100**, an alignment system may be provided. In this regard, alignment guides can be provided at the electric vehicle **100** that mate with alignment members at the auxiliary battery module **102** to guide the positioning of the auxiliary battery module **102** during attachment. For example, as illustrated in FIGS. 1A-1C, protruding support portions **121** of the auxiliary battery module **102** may have downward facing tapered surfaces **121a** that mate with complementary upward facing tapered surfaces **123a** of recessed portions **123** of sidewall members **116**. In this way, when the auxiliary battery module **102** is lowered onto the electric vehicle **100**, downward facing tapered surfaces **121a** will contact upward facing tapered surfaces **123a**, such that any lateral misalignment of the auxiliary battery module **102** relative to the supporting recessed portions **123**, will undergo self-correcting alignment (self alignment). The recessed portions **123** can have a

length in a lengthwise direction extending between the front and rear of the vehicle **100** that is longer, e.g., several (3, 4, 5, 6) inches longer, than a length of the protruding support portions **121** of the auxiliary battery module in the lengthwise direction. The auxiliary battery module **102** can thereby be lowered initially onto the electric vehicle rearward of its intended final position, e.g., several inches rearward, so that no vertical interference occurs between first and second electrical connectors **120** and **122** nor between first and second fluid connectors **124** and **126** as the auxiliary battery module **102** is being lowered, so as to prevent any damage to such connectors during attachment (mounting) of the auxiliary battery module **102**. The auxiliary battery module **102** can then be pushed forward to engage the electrical and fluid connections and secure the auxiliary battery module **102** to the electric vehicle **100**.

[0027] To further facilitate proper alignment of the auxiliary battery module **102**, as illustrated in the example of FIGS. 1A-1C, receptacles **128** recessed into a forward sidewall of the cargo area **112**, having a tapered opening portion **128a** and a cylindrical opening portion **128b**, can mate with protruding alignment members **130** at a forward sidewall of the battery housing **103** of the auxiliary battery module **102**, wherein the protruding alignment members **130** have a complementary tapered portion **130a** and cylindrical portion **130b**. After the auxiliary battery module **102** is initially positioned so as to place protruding support portions **121** on recessed portions **123** of the vehicle side members **116**, the auxiliary battery module **102** can then be pushed forward, any misalignment of the auxiliary battery module will be corrected as the protruding cylindrical portion **130b** contacts tapered opening portion **128a**, which then guide protruding cylindrical portion **130b** into cylindrical opening portion **128b** as the auxiliary battery module **102** is pushed forward, thereby providing for proper connection and seating of the first and second electrical connectors **120**, **122** and the first and second fluid connectors **124**, **126**. The receptacle **128** and corresponding protruding portion **130** may be configured to have sizes in a lengthwise direction extending between the front and rear of the electric vehicle **100** such that the receptacle **128** and protruding portion **130** engage and align before the respective electrical connectors **120** and **122** and respective fluid connectors **124** and **126** engage with one another, so as to ensure proper alignment and prevent damage to such connectors.

[0028] Additionally, according to another exemplary aspect, as shown in FIGS. 3A-3C, an insert **170** may be provided to fill the recessed portion **123** when an auxiliary battery module **102** is not attached to the electric vehicle **100**. For example, the insert **170** may comprise a first (e.g., front) insert member **172** and a second (e.g., rear) insert member **174**, which may be attached to the sidewall members **116** with fasteners such as threaded bolts that pass through holes in the insert **170** and can be secured into threaded holes **132**. The insert **170** may be made from metal alloy (e.g., aluminum alloy), plastic materials, or composite materials, for example. As shown in FIG. 3B, the insert **170** can be removed, and an auxiliary battery module **102** can be lowered onto the electric vehicle several inches rearward of the intended final secured position of the auxiliary battery module **102**. As shown in FIG. 3C, the auxiliary battery module can then be pushed forward to its final intended position and secured to the electric vehicle **100** as described above. Finally, the second (rear) insert member **174** can be